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PENSOFT

An annotated checklist of the macrofungi (Ascomycota, Basidiomycota, and Glomeromycota) from Quintana Roo, Mexico

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Abstract

According to records available in the literature, 380 species of fungi and fungus-like organisms are known for the state of Quintana Roo on the Yucatán Peninsula of Mexico. We carried out mycological surveys in this state, following the classical methods for collecting, describing, and curating macrofungi. As a result of our research, 21 species are recorded for the first time for Quintana Roo, and *Amanita arenicola* O. K. Milller & Lodge, *Inocybe xerophytica* Pegler, and *Russula cremeolilacina* Pegler are recorded for the first time for Mexico. The distinctive characteristics and photographs are provided for the new records. As a result of this study, 401 species of macrofungi are known for Quintana Roo.

Keywords

Diversity, funga, macrofungi, tropical fungi, Yucatán Peninsula.

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Introduction

Mexico harbors a great fungal diversity, and its wide variety of geographical conditions, orography, and habitat promotes niches where fungal diversity thrives (Aguirre-Acosta et al. 2014). Guzmán (1998) estimated that 200,000 fungal species might occur in Mexico but less than 10% have been studied. So far, most fungal research has been focused on fungi occurring in temperate forests. Until 2008, only 2135 species had been

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recorded for Mexico mainly from temperate forest (Aguirre-Acosta et al. 2014). More than 900 species were recorded from tropical forest but studies regarding tropical fungi are still scarce (Guzmán et al. 1997).

The Mexican states of Quintana Roo, Campeche, and Yucatan, as well as a part of Belize and Guatemala in Central America make up the floristic province called Yucatan Peninsula. It is characterized by its deciduous, sub-deciduous, or evergreen forests. In the state of Quintana Roo, most of the arboreal species of the Yucatan Peninsula are represented, so the mycobiota of Quintana Roo is expected to be representative of the Yucatan Peninsula (Ibarra-Manríquez et al. 1995; Valdéz-Hernández and Islebe 2011).

The state of Quintana Roo has an interesting fungal diversity, which has been studied since the late 19th century by Millspaug (Chío and Guzmán 1983). The studies of Chío and Guzmán (1982), Guzmán-Dávalos and Guzmán (1982), Guzmán (1983), San Martín and Rogers (1988), Pérez-Silva et al. (1992), Ryvarden and Guzmán (1993), San Martín et al. (1995), San Martín et al. (1999), Guzmán (2003), and Pompa-González et al. (2011) have contributed knowledge on fungi for Quintana Roo by presenting the first checklist of macrofungi and describing several new species. As a result of those studies, 405 species of fungi and fungus like organisms (including lichenized fungi and myxomycetes) have been reported from the state of Quintana Roo (López et al. 2011).

Deforestation and land-use changes due to agricultural practices and new tourist developments are some of the main challenges for conservation of the fungal biodiversity in tropical forest in Quintana Roo (Valdéz-Hernández and Islebe 2011). Furthermore, loss of forest coverage may lead many fungal species to extinction, and some of them have not even been previously recorded nor described. On the other hand, there are taxonomic obstacles for correct identification, a paucity of trained mycologists, and few publications (Mueller and Schmit 2007). Furthermore, some forests, such as the forests in flooded lowlands and the pine savanna, have many interesting fungal species that are not yet formally recorded. The aim of this paper is to summarize and update information on current knowledge of macrofungi diversity from the forests of the state of Quintana Roo. To address this situation, we present our new data from our mycological studies, and we compile from the literature lists of species of fungal species collected in various ecosystems in Quintana Roo, Mexico.

Methods

Study area. The state of Quintana Roo, where collections were made (Fig 1) is located in southeastern Mexican, on the Yucatan Peninsula. The most representative forests are evergreen tropical forest composed mainly of *Brosimum alicastrum* Sw., *Bursera simaruba* (L.) Sarg., *Manilkara zapota* (L.) van Royen, *Metopium brownei* (Jacq.) Urb., and *Vitex gaumeri* Greenm. Lowland forest present *Cameraria latifolia* L., *Gymnopodium floribundum* Rolfe, *Haematoxylum campechianum* L., *M. brownei*, and *Terminalia buceras* (L.) C. Wright; coastal vegetation composed of *Chrysobalanus icaco* L., *Coccoloba uvifera* (L.) L., *Cordia sebestena* L., and *Pouteria campechiana* (Kunth) Baehni; pine savanna composed of *Pinus caribaea* Morelet, *H. campechianum*, *Byrsonima crassifolia* (L.) Kunth, *Curetella america* L. and *Crescentia cujete* L.; and secondary vegetación composed of *Cecropia peltata* L., *Lysiloma latisiliquum* (L.) Benth. and *Piscidia piscipula* (L.) Sarg., among numerous other species (Macario-Sánchez and Sánchez 2011; Valdéz-Hernández and Islebe 2011).

Fieldwork. Sampling and collection of macrofungi specimens follow the methods presented by Lodge et al. (2004). Hand-cut sections were mounted in KOH 5% (potassium hydroxide) and Meltzer reagent in order to make microscopic observations of the species. The specimens were identified using specialized literature such as Pegler (1983), Webber and Smith (1985), Guzmán (2003), and other publications cited below. The specimens were deposited in the "José Castillo Tovar" herbarium at the Instituto Tecnológico de Ciudad Victoria (ITCV) and the mycological collection of the Instituto Tecnológico de la Zona Maya (ITZM).

Literature review. The literature-based checklist was based on specialized published literature to local, country, and world levels that cite macrofungi from Quintana Roo, which was found by consulting ISI Web of Knowledge, ResearchGate, and the UNITE database for molecular identification of fungi (https://unite.ut.ee/). Searches were made using the key words: Quintana Roo + basidiomes; Quintana Roo + macrofungi; Quintana Roo + Ascomycetes, and Yucatán Peninsula + Macrofungi. Published sources in journals, book chapters, scientific notes, and scientific books were considered for the check list; theses and congress results were not considered. Accepted names are according to Index Fungorum (http://www.indexfungorum.org/names/names.asp). The species are systematically classified according to Kirk et al. (2008).

Table 1. Collecting sites in Quintana Roo, Mexico.

Localities	Geographic coordinates	Vegetation type	Elevation a.s.l. (m)
Oxtankáh	18°36'N, 088°13'W	Secondary vegetation and evergreen tropical forest	14
Hermenegildo Galeana	18°10'N, 089°14'W	Evergreen tropical forest and lowland forest	229
Blasillo	18°09'N, 088°13'W	Lowland forest	213
Laguna Guerrero	18°45'N, 088°11'W	Lowland forest	9
Jaguactal	18°14'N, 088°57'W	Lowland forest and pine savanna	132
Chetumal	18°31'N, 088°18'W	Secondary vegetation and coastal vegetation	8
Road to El Huasteco	19°18'N, 088°16'W	Evergreen tropical forest	33
San Pedro Peralta	18°42'N, 088°49'W	Secondary vegetation	175
Kohunlich	18°25'N, 088°47'W	Secondary vegetation	120
Bacalar	18°45'N, 088°20'W	Secondary vegetation	19

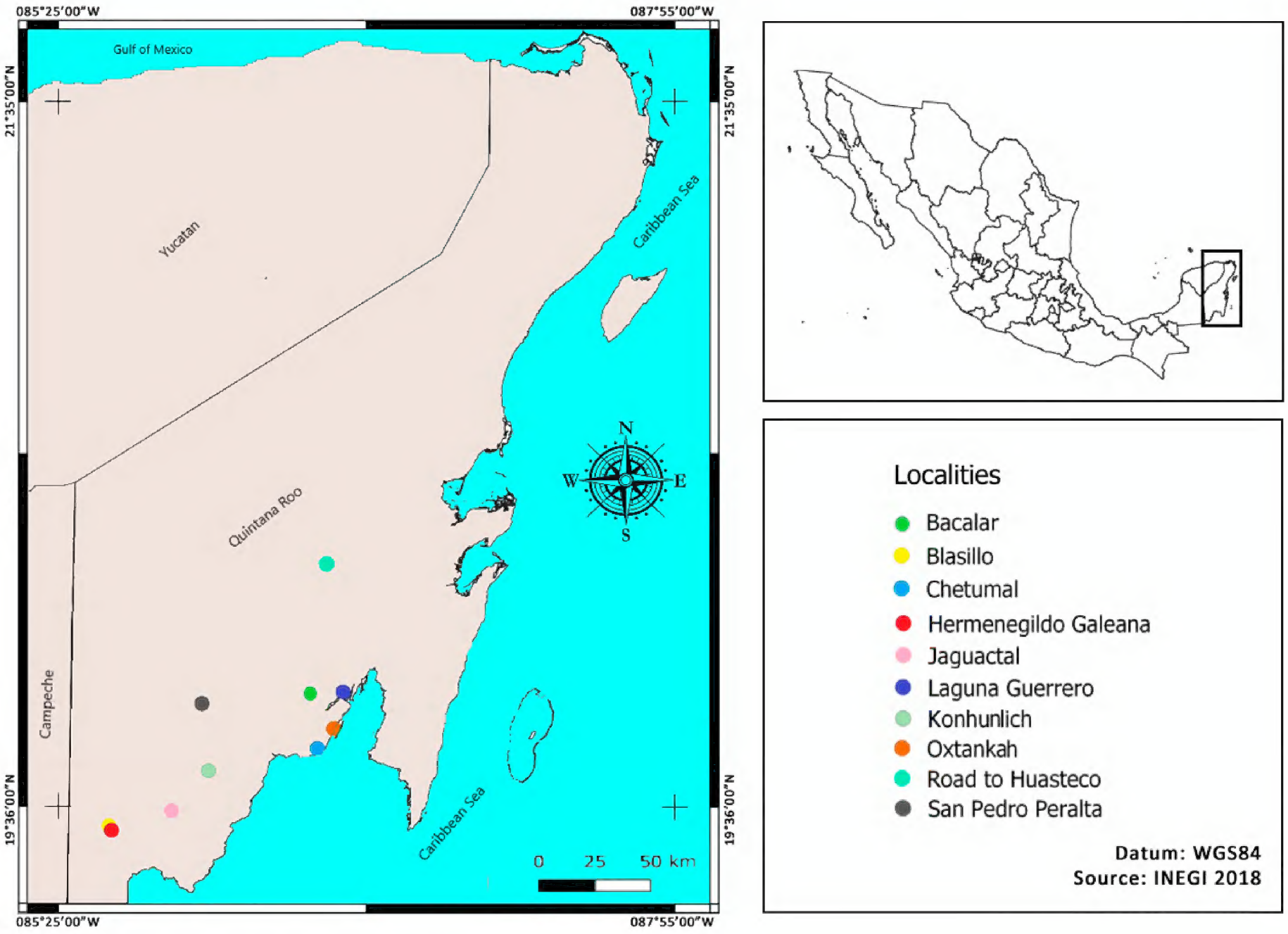

Figure 1. Collecting sites in Quintana Roo, Mexico.

Results

Among specimens of macrofungi that we collected in Quintana Roo, 77 species of macrofungi were identified. Among these, 21 species are new records for Quintana Roo (Figs 2, 3) and *Amanita arenicola* O. K. Miller & Lodge, *Inocybe xerophytica* Pegler, and *Russula cremeolilacina* Pegler are new records for Mexico. Most of the species belong to Basidiomycota (65 species), followed by Ascomycota (11 species) and Glomeromycota (1 species). Our analysis of literature records showed that there are 380 species previously known from Quintana Roo. The total list, 401 species, was checked and taxonomic names were updated according to Index Fungorum (http://www.indexfungorum.org/names/names.asp). Species newly recorded from Quintana Roo are marked with an asterisk (*). Most of the species (317 species) belong to Basidiomycota, followed by Ascomycota (83 species) and Glomeromycota (1 species). The most representative families are Xylariaceae (44 species), Polyporaceae (41 species), and Agaricaceae (30 species) (Table 2).

Checklist of macrofungi from Quintana Roo, Mexico

Species names marked with an asterisk (*) are reported for the first time for Mexico. They are described in detail below. For photographs of selected species, see Figures 2–5.

Ascomycota
Coronophorales
Nitschkiaceae
Calyculosphaeria calyculus (Mont.) Fitzp.
Literature: Medel et al. (1999).

Hypocreales
Ophiocordycipitaceae
**Ophiocordyceps melolonthae* (Tul. & C. Tul.) G.H. Sung, J.M. Sung, Hywel-Jones & Spatafora. Fig. 2A.

Nectriaceae
Nectria aurantiaca (Tul. & C. Tul.) Jacz.
Literature: Guzmán (2003).

Table 2. Most common taxa of macrofungi known from Quintana Roo, Mexico, ranked according to numbers of species reported per family.

Phylum	Order	Family	Genera	Species
Ascomycota	Xylariales	Xylariaceae	4	44
Basidiomycota	Polyporales	Polyporaceae	14	41
Basidiomycota	Agaricales	Agaricaceae	11	30
Ascomycota	Xylariales	Hypoxylaceae	5	28
Basidiomycota	Hymenochaetales	Hymenochaetaceae	10	24
Basidiomycota	Agaricales	Marasmiaceae	11	22
Basidiomycota	Agaricales	Entolomataceae	1	13
Basidiomycota	Agaricales	Psathyrellaceae	3	12
Basidiomycota	Polyporales	Ganodermataceae	3	11
Basidiomycota	Agaricales	Geastraceae	2	10
Basidiomycota	Agaricales	Tricholomataceae	8	9

Hysteriales
Hysteriaceae
Hysterium angustatum Alb. & Schwein. Literature: Guzmán (1983).

Pezizales
Sarcoscyphaceae
Cookeina speciosa (Fr.) Dennis.
Literature: Guzmán (2003).
Cookeina sulcipes (Berk.) Kuntze.
Literature: Guzmán (1983).
Cookeina tricholoma (Mont.) Kuntze.
Literature: Guzmán (1983), Guzmán (2003). Fig. 4A
**Geodina guanacastensis* Denison.
Fig. 2B.
Phillipsia crispata (Berk. & M.A. Curtis).
Literature: Tun-Cano (2018).
Phillipsia domingensis (Berk.) Berk. ex Denison
Literature: Guzmán (1983), Guzmán (2003). Fig. 4B.
Phillipsia hartmannii (W. Phillips) Rifai.
Literature: Guzmán (1983), Medel et al. (1999).

Xylariales
Hypoxylaceae
Annulohypoxylon archeri (Berk.)Y.M. Ju, J.D. Rogers & H.M. Hsieh.
Literature: Medel et al. (1999), Medel (2002).
Annulohypoxylon moriforme (Henn.)Y.M. Ju, J.D. Rogers & H.M. Hsieh.
Literature: Medel et al. (1999), San Martín et al. (1999).
Annulohypoxylon pseudostipitatum (Y.M. Ju & J.D. Rogers) Y.M. Ju, J.D. Rogers & H.M. Hsieh.
Literature: Medel et al. (1999), San Martín et al. (1999).
Annulohypoxylon stygium (Lév.)Y.M. Ju, J.D. Rogers & H.M. Hsieh.
Literature: San Martín et al. (1999).
Annulohypoxylon truncatum (Starbäck) Y.M. Ju, J.D. Rogers & H.M. Hsieh.
Literature: Medel et al. (1999), San Martín et al. (1999), Medel (2002).
Daldinia brachysperma F. San Martín, Y.M. Ju & J.D. Rogers.
Literature: Ju et al. (1997).
Daldinia concentrica (Bolton) Ces. & De Not.
Literature: Guzmán (1983), Pompa-Gonzáles et al. (2011).
Daldinia eschscholtzii (Ehrenb.) Rehm.
Literature: Guzmán (1983), Ju et al. (1997), Medel (2002), Pompa-Gonzáles et al. (2011). Fig. 4C.
Hypoxylon aeruginosum J.H. Mill.
Literature: Medel et al. (1999), San Martín et al. (1999).
Hypoxylon crocopeplum Berk. & M.A. Curtis.
Literature: Medel et al. (1999), San Martín et al. (1999), Medel (2002).
Hypoxylon dieckmannii Theiss.
Literature: San Martín et al. (1999).
Hypoxylon duranii J.D. Rogers.
Literature: San Martín et al. (1999).
Hypoxylon erythrostroma J.H. Mill.
Literature: San Martín et al. (1999).
Hypoxylon fendleri Berk.ex Cooke.
Literature: Medel et al. (1999), San Martín et al. (1999).
Hypoxylon haematostroma Mont.
Literature: Guzmán (1983), San Martín et al. (1999), Medel (2002).
Hypoxylon hypomiltum Mont.
Literature: Guzmán (1983), Ju and Rogers (1997), Medel et al. (1999), Medel (2002).
Hypoxylon lenormandii Berk. & M.A. Curtis.
Literature: San Martín et al. (1999).
Hypoxylon lividipigmentum F. San Martín, Y.M. Ju & J.D. Rogers.
Literature: Medel et al. (1999), San Martín et al. (1999).
Hypoxylon macrocarpum Pouzar.
Literature: San Martín et al. (1999).
Hypoxylon monticulosum Mont.
Literature: Medel et al. (1999), San Martín (1999).
Hypoxylon polyporus (Starbäck) Y.M. Ju & J.D. Rogers.
Literature: San Martín et al. (1999).
Hypoxylon rubiginosum (Pers.) Fr.
Literature: Guzmán (1983), Medel (2002).
Hypoxylon sublimbatum (Durieu & Mont.) P.M.D. Martin.
Literature: Medel et al. (1999).
Hypoxylon subrutilum Starbäck.
Literature: San Martín et al. (1999).
Phylacia globosa Lév.
Literature: Guzmán (1983), Pompa-Gonzáles et al. (2011).
Phylacia poculiformis (Mont.) Mont.
Literature: Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011).
Phylacia turbinata (Berk.) Dennis.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Thuemenella cubispora (Ellis & Holw.) Boedijn.
Literature: Medel (2001).

Xylariaceae
Biscogniauxia capnodes (Berk.)Y.M. Ju & J.D. Rogers.
Literature: Medel et al. (1999).
Biscogniauxia nummularia (Bull.) Kuntze.
Literature: Pérez-Silva et al. (1992).
Kretzschmaria cetrarioides (Welw. & Curr.) Sacc.
Literature: San Martín and Rogers (1993).
Poronia oedipus (Mont.) Mont.
Literature: Guzmán (2003).
Xylaria allantoidea (Berk.) Fr.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Medel et al. (1999).
Xylaria anisopleura (Mont.) Fr.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Medel et al. (1999).
Xylaria arbuscula Sacc.
Literature: San Martín and Rogers (1989), San Martín et al. (1995).

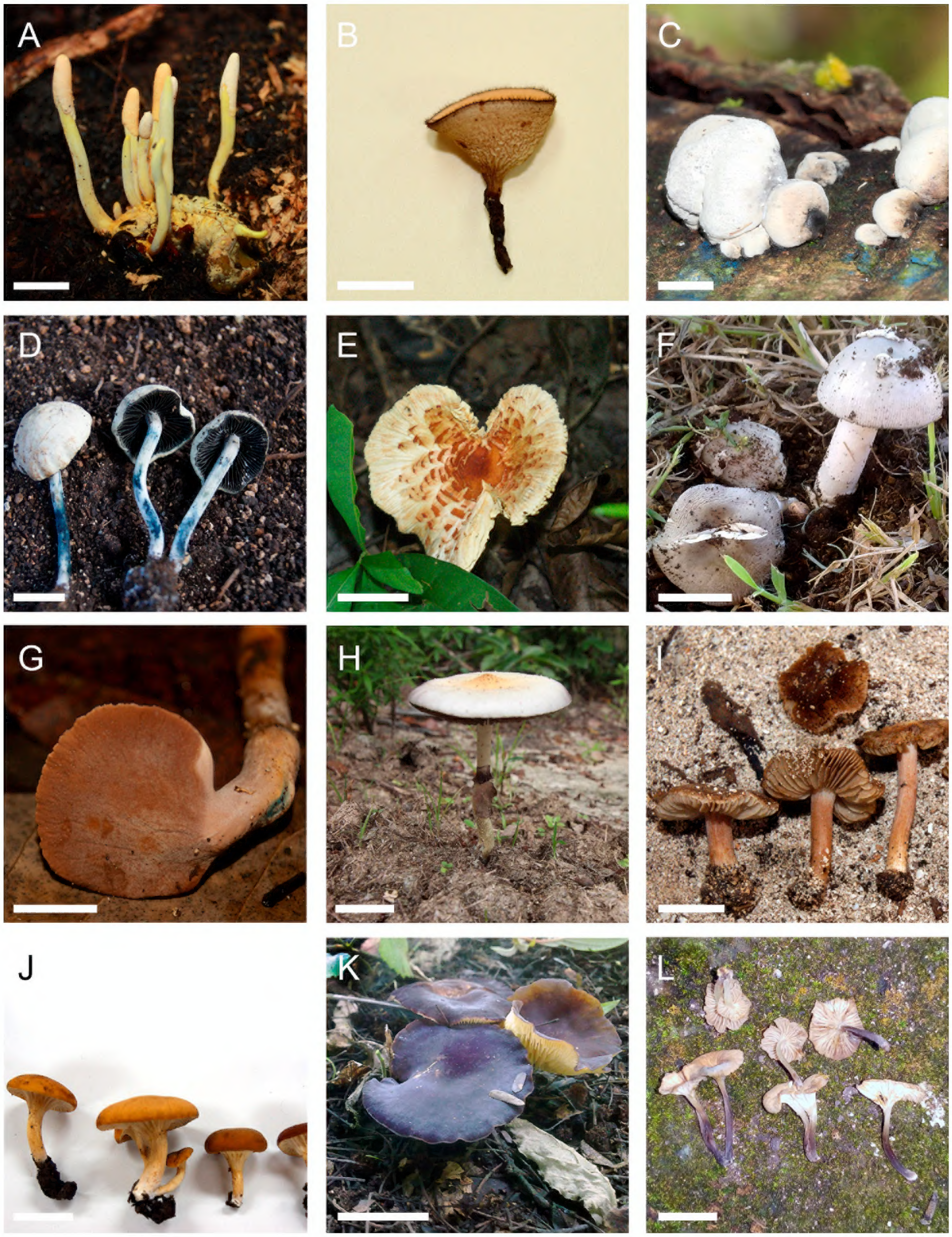

Figure 2. New records from Quintana Roo. **A.** *Ophiocordyceps melolonthae*. **B.** *Geodina guanacastensis*. **C.** *Xylaria mesenterica*. **D.** *Paneolus cyanescens*. **E.** *Rugosospora ochraceobadia*. **F.** *Amanita arenicola*. **G.** *Pseudofistulina radicata*. **H.** *Psilocybe cubensis*. **I.** *Inocybe xerophytica*. **J.** *Neopaxillus dominicanus*. **K.** *Calocybe cyanea*. **L.** *Gerronema bryogeton*. Scale bars = 10 mm.

Xylaria bambooensis Lloyd.
Literature: San Martín and Rogers (1989), Medel et al. (1999), Guzmán (2003).

Xylaria brachiata Sacc.
Literature: San Martín et al. (1995), Medel et al. (1999).

Xylaria coccophora Mont.
Literature: San Martín and Rogers (1989),

Figure 3. New records from Quintana Roo. **A.** *Hydropus nigrita*. **B.** *Macrocybe titans*. **C.** *Mucilopilus mexicanus*. **D.** *Gyrodontium sacchari*. **E.** *Cantharellus coccolobae*. **F.** *Laternea dringii*. **G.** *Lactifluus nebulosus*. **H.** *Russula cremeolilacina*. **J.** *Tremella fusiformis*. Scale bars = 10 mm.

Pérez-Silva et al. (1992), San Martín et al. (1995), Medel et al. (1999), Guzmán (2003).

Xylaria corniformis (Fr.) Fr.
Literature: San Martín et al. (1995).

Xylaria cubensis (Mont.) Fr.
Literature: San Martín and Rogers (1989), Guzmán (1983), San Martín et al. (1995).

Xylaria delicatula Starbäck.
Literature: San Martín et al. (1995), Medel et al. (1999).

Xylaria dichotoma (Mont.) Mont.
Literature: San Martín et al. (1995), Medel et al. (1999).

Xylaria feejeensis (Berk.) Fr.
Literature: San Martín et al. (1995).

Xylaria fockei (Miq.) Cooke.
Literature: Guzmán (1983).

Xylaria gracillima (Fr.) Fr.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Medel et al. (1999).

Xylaria guianensis (Mont.) Fr.
Literature: Chío and Guzmán (1982), Chay-Casanova and Medel (2000).

Xylaria hypoxylon (L.) Grev.
Literature: Guzmán (1983), San Martín et al. (1995),Medel et al. (1999), Pompa-Gonzáles et al. (2011).

Xylaria ianthinovelutina (Mont.) Fr.
Literature: San Martín and Rogers (1989), Pérez-Silva et al. (1992), San Martín et al. (1995), Medel et al. (1999).

Xylaria inaequalis Berk. & M.A. Curtis.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Medel et al. (1999).

Xylaria juniperus Starbäck.
Literature: San Martín et al. (1995).

Figure 4. Representative fungi from Quintana Roo. **A.** *Cookeina tricholoma* **B.** *Phillipsia domingensis*. **C.** *Daldinia eschscholtzii*. **D.** *Leucocoprinus birnbaumii*. **E.** *Amanita silvatica*. **F.** *Marasmius cladophyllus*. **G.** *Nothopanus eugrammus*. **H.** *Panellus pusillus*. **I.** *Pleurotus djamor*. **J.** *Coprinellus disseminatus*. **K.** *Lepista yucatanensis*. **L.** *Leucopaxillus gracillimus*. Scale bars = 10 mm.

Xylaria juruensis Henn.
Literature: San Martín and Rogers (1989), Medel et al. (1995).
Xylaria laevis Lloyd.
Literature: San Martín et al. (1995), Medel et al. (1999).
Xylaria lancea Lloyd.
Literature: San Martín et al. (1995), Medel et al. (1999).
Xylaria magniannulata F. San Martín & J.D. Rogers.

Literature: San Martín and Rogers (1988), San Martín et al. (1995), Medel et al. (1999).
**Xylaria mesenterica* (Möller) M. Stadler, Læssøe & J. Fourn. Fig. 2C.
Xylaria microceras (Mont.) Berk.
Literature: San Martín et al. (1995).
Xylaria montagnei Hamme & Guerrero.
Literature: San Martín et al. (1995), Medel et al. (1999).
Xylaria multiplex (Kunze) Fr.
Literature: Guzmán (1983), San Martín and Rogers (1989), San Martín et al. (1995).
Xylaria muscula Lloyd.
Literature: San Martín and Rogers (1989), Medel et al. (1995).
Xylaria musooriensis Dargan.
Literature: San Martín et al. (1995), Medel et al. (1999).
Xylaria olobapha Berk.
Literature: San Martín et al. (1995).
Xylaria oxyacanthae Tul. & C. Tul.
Literature: San Martín et al. (1995).
Xylaria pallide-ostiolata Henn.
Literature: San Martín and Rogers (1988), San Martín et al. (1995), Medel et al. (1999).
Xylaria phyllocharis Mont.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Guzmán (2003).
Xylaria poitei (Lév.) Fr.
Literature: San Martín (1995).
Xylaria polymorpha (Pers.) Grev.
Literature: San Martín and Rogers (1989), San Martín et al. (1995), Guzmán (2003).
Xylaria rhizomorpha (Mont.) Mont.
Literature: San Martín et al. (1995).
Xylaria scabriclavula F. San Martín & J.D. Rogers.
Literature: San Martín and Rogers (1989), San Martín et al. (1995).
Xylaria scopiformis Mont. ex Berk. & Broome.
Literature: San Martín et al. (1995).
Xylaria scruposa (Fr.) Fr.
Literature: San Martín et al. (1995).
Xylaria squamulosa F. San Martín & J.D. Rogers.
Literature: San Martín and Rogers (1989), San Martín et al. (1995).
Xylaria uniapiculata F. San Martín & J.D. Rogers.
Literature: San Martín et al. (1995).

Basidiomycota
Incerta caedis
Cotylidia aurantiaca (Pat.) A.L. Welden.
Literature: Pérez-Silva et al. (1992), Guzmán (2003).
Cotylidia diaphana (Cooke) Lentz.
Literature: Pérez-Silva et al. (1992).

Agaricales
Incertae sedis
Panaeolus antillarum (Fr.) Dennis.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Guzmán (2003).
**Panaeolus cyanescens* Sacc. Fig. 2D.
Panaeolus papilionaceus (Bull.) Quél.
Literature: Guzmán (1983).
Panaeolus variabilis Overh.
Literature: Guzmán (1983).
Mesophelliopsis pernambucensis Bat. & A.F. Vital.
Literature: Guzmán (2003).

Agaricaceae
Agaricus benzodorus Heinem. & Gooss.-Font.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus dennisii Heinem.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus dulcidulus Schulzer F.H. Møller.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus endoxanthus Berk. & Broome.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus singeri Heinem.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus trinitatensis R.E.D. Baker & W.T. Dale.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Agaricus xanthodermus Genev.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).
Chlorophyllum molybdites (G. Mey.) Massee.
Literature: Guzmán (2003).
Cyathia intermedia (Mont.) V.S. White.
Literature: Chío and Guzmán (1982).
Cyathus colensoi Berk.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011).
Cyathus limbatus Tul. & C. Tul.
Literature: Guzmán (1983).
Cyathus pallidus Berk. & M.A. Curtis.
Literature: Guzmán (1983).
Lepiota ciqroensis Guzm.-Dáv. & Guzmán.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota microcystidiata Guzm.-Dáv. & Guzmán.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota montagnei (Kalchbr.) Sacc.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota mucronata Guzm.-Dáv. & Guzmán.
Literature: Guzmán-Dávalos and Guzmán (1982), Chay-Casanova & Medel (2000).
Lepiota phaeosticta Morgan.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota pseudoroseola Dennis.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota quintanaroensis Guzm.-Dáv. & Guzmán.
Literature: Guzmán-Dávalos and Guzmán (1982), Chay-Casanova and Medel (2000).

Lepiota spiculata Pegler.
Literature: Singer and García (1988).
Lepiota termitomyces Guzm.-Dáv. & Guzmán.
Literature: Guzmán-Dávalos and Guzmán (1982).
Lepiota vascularis Pegler.
Literature: Guzmán-Dávalos and Guzmán (1982).
Leucoagaricus lilaceus Singer.
Literature: de la Fuente et al. (2018b).
Leucocoprinus badhamii (Berk. & Broome) Locq.
Literature: Pérez-Silva et al. (1992).
Leucocoprinus birnbaumii (Corda) Singer.
Literature: Chío and Guzmán (1982), Pompa-Gonzáles et al. (2011). Fig. 4D.
Leucocoprinus cepistipes (Sowerby) Pat.
Literature: Guzmán (1983).
Lycogalopsis solmsii E. Fisch.
Literature: Guzmán (2003).
Lycoperdon subincarnatum Peck.
Literature: Guzmán (1983).
**Rugosospora ochraceobadia* (Beeli) Heinem. Fig. 2E.
Tulostoma brumale Pers.
Literature: Pérez-Silva et al. (1992).

Amanitaceae
**Amanita arenicola* O. Ok Mill. & Lodge. Fig. 2F.
Amanita gemmata (Fr.) Bertill.
Literature: Pérez-Silva et al. (1992).
Amanita silvatica Guzmán.
Literature: Guzmán (1982), Guzmán (2006). Fig. 4E.
Amanita vaginata (Bull.) Lam.
Literature: Pérez-Silva et al. (1992).
Amanita yucatanensis Guzmán.
Literature: Guzmán (1982).

Bolbitaceae
Conocybe apala (Fr.) Arnolds.
Literature: Pérez-Silva et al. (1992).

Entolomataceae
Entoloma atropileatum Dennis.
Literature: Guzmán (1983).
Entoloma bakeri Dennis.
Literature: Guzmán (1983).
Entoloma guatopoanum (Dennis) E. Horak.
Literature: Guzmán (1983).
Entoloma howellii (Peck) Dennis.
Literature: Guzmán (1983).
Entoloma lisalense (Beeli) Noordel. & Co-David.
Literature: Guzmán (1983).
Entoloma naranjanum Dennis.
Literature: Guzmán (1983).
Entoloma obscurum Dennis.
Literature: Guzmán (1983).
Entoloma sericellum (Fr.) P. Kumm.
Literature: Guzmán (1983).
Entoloma stylophorum (Berk. & Broome) Sacc.
Literature: Guzmán (1983).
Entoloma umbilicatum Dennis.
Literature: Guzmán (1983).
Entoloma underwoodii Dennis.
Literature: Guzmán (1983).
Entoloma venezuelanum (Dennis) E. Horak.
Literature: Guzmán (1983).
Entoloma violaceum Murrill.
Literature: Guzmán (1983).

Fistulinaceae
**Pseudofistulina radicata* (Schwein.) Burds. Fig. 2G.

Hygrophoraceae
Hygrocybe earlei Murrill.
Literature: Guzmán (1983).
Hygrocybe firma (Berk.& Broome) Singer.
Literature: Guzmán (1983).
Hygrocybe hypohaemacta (Corner) Pegler.
Literature: Guzmán (1983).
Hygrophorus buccinulus (Speg.) Dennis.
Literature: Guzmán (1983).
Hymenogastraceae
Deconica coprophila (Bull.) P. Karst.
Literature: Guzmán (1983).
Gymnopilus lepidotus Hesler.
Literature: Guzmán (2003).
Hebeloma vatricosum (Fr.) Murrill.
Literature: Pérez-Silva et al. (1992).
**Psilocybe cubensis* (Earle) Singer. Fig. 2H.

Inocybaceae
Crepidotus decipiens Singer.
Literature: Guzmán (1983).
Inocybe tropicalis Guzmán.
Literature: Guzman (1982), Guzmán (2003).
**Inocybe xerophytica* Pegler. Fig. 2I.
Neopaxillus echinospermus (Speg.) Singer.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
**Neopaxillus dominicanus* Angelini & Vizzini. Fig. 2J.

Lycoperdaceae
Apioperdon pyriforme (Schaeff) Vizzini.
Literature: Guzmán (1983).

Lyophyllaceae
**Calocybe cyanea* Singer ex Redhead & Singer. Fig. 2K.

Marasmiaceae
Baeospora pleurotoides (Dennis) Singer.
Literature: Guzmán (1983).
Campanella junghuhnii (Mont.) Singer.
Literature: Guzmán (1983).
Clitocybula omphaliiformis Pegler.
Literature: Guzmán (1983).
Crinipellis actinophora (Berk. & Broome) Singer.
Literature: Guzmán (2003).
**Gerronema bryogeton* Singer. Fig. 2L.
Hemimycena longicystis R. Heim.
Literature: Guzmán (1983).
**Hydropus nigrita* (Berk. & M.A. Curtis) Singer. Fig. 3A.

Lactocollybia epia (Berk. & Broome) Pegler.
Literature: Guzmán (1983).
Marasmius aciculiformis Berk. & M.A. Curtis.
Literature: Guzmán (1982), Chay-Casanova and Medel (2000).
Marasmius berteroi (Lév.) Murrill.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Marasmius cladophyllus Berk.
Literature: Guzmán (2003). Fig. 4F.
Marasmius crinis-equi F. Muell. ex Kalchbr.
Literature: Pompa-Gonzáles et al. (2011).
Marasmius edwallianus Henn.
Literature: Guzmán (1983).
Marasmius ferrugineus Berk.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Marasmius foliicola Singer.
Literature: Guzmán (1983).
Marasmius fulvoferrugineus Gilliam.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).
Marasmius haematocephalus (Mont.) Fr.
Literature: Guzmán (1983).
Marasmius jalapensis Murrill.
Literature: Guzmán (1983), Guzmán (2003).
Marasmius pulcherripes Peck.
Literature: Pompa-Gonzáles et al. (2011).
Nothopanus eugrammus (Mont.) Singer.
Literature: Guzmán (1983), Guzmán (2003). Fig. 4G.
Trogia buccinalis (Mont.) Pat.
Literature: Guzmán (2003).
Trogia cantharelloides (Mont.) Pat.
Literature: Guzmán (1983), Guzmán (2003).

Mycenaceae
Favolaschia fendleri Singer.
Literature: Guzmán (2003).
Filoboletus clypeatus (Pat.) Singer.
Literature: Guzmán (1983).
Filoboletus gracilis (Klotzsch ex Berk.) Singer.
Literature: Guzmán (2003).
Mycena albostriata Dennis.
Literature: Guzmán (1983).
Mycena holoporphyra (Berk. & M.A. Curtis) Singer.
Literature: Guzmán (1983).
Mycena plectophylla (Mont.) Dennis.
Literature: Guzmán (1983).
Mycena pura (Pers.) P. Kumm.
Literature: Guzmán (1983).
Mycena tessellata (Mont.) Dennis.
Literature: Guzmán (1983).
Panellus pusillus (Pers. ex Lév.) Burds. & O.K. Mill.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Guzmán (2003). Fig. 4H.
Xeromphalina tenuipes (Schwein.) A.H. Sm.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).

Niaceae
Merismodes ochracea (Hoffm.) D.A. Reid.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).

Omphallotaceae
Connopus acervatus (Fr.) K.W. Hughes, Mather & R.H. Petersen.
Literature: Guzmán (1983).
Gymnopus confluens (Pers.) Antonín, Halling & Noordel.
Literature: Guzmán (1983).
Gymnopus omphalodes (Berk.)Halling & J.L. Mata.
Literature: Guzmán (1983).
Gymnopus polyphyllus (Peck) Halling.
Literature: Guzmán (1983).
Marasmiellus catephes (Berk.) Singer.
Literature: Guzmán (1983).
Marasmiellus cubensis (Berk. & M.A. Curtis) Singer.
Literature: Guzmán (2003).
Marasmiellus inoderma (Berk.) Singer.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).
Marasmiellus roseipallens (Murrill) Singer.
Literature: Guzmán (1983).
Neonothopanus hygrophanus (Mont.) De Kesel & Degreef.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).

Pleurotaceae
Pleurotus djamor (Rumph. ex Fr.) Boedijn.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011). Fig. 4I.
Pleurotus ostreatus (Jacq.) P. Kumm.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).

Pluteaceae
Pluteus oligocystis Singer.
Literature: Guzmán (1983), Rodríguez (2013).
Pluteus podospileus Sacc. & Cub.
Literature. Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).
Pluteus pulverulentus Murrill.
Literature: Guzmán (1983), Rodríguez (2013).
Volvariella bakeri (Murrill) Shaffer.
Literature: Guzmán (1993).
Volvariella bombycina (Schaeff.) Singer.
Literature: Guzmán (2003).
Volvariella lepiotospora Singer.
Literature: Guzmán (1983).
Volvariella pseudovolvacea (Berk. & Broome) Singer.
Literature: Guzmán (2003).
Volvariella volvacea (Bull.) Singer.
Literature: Guzmán (2003).

Psathyrellaceae
Coprinellus radians (Fr.) Vilgalys, Hopple & Jacq. Johnson.

Literature: Guzmán (2003).
Coprinellus disseminatus (Pers.) J.E. Lange.
Literature: Tun-Cano (2018). Fig. 4J.
Coprinopsis echinospora (Buller) Redhead, Vilgalys & Moncalvo.
Literature: Guzmán (1983), Guzmán (2003).
Coprinopsis lagopus (Fr.) Redhead, Vilgalys & Moncalvo.
Literature: Pompa-Gonzáles et al. (2011).
Psathyrella albocapitata Dennis.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella ammophila (Durieu & Lév.) P.D. Orton.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella araguana Dennis.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella candolleana (Fr.) Maire.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella coprinoceps (Berk. & M.A. Curtis) Dennis.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella erinensis Dennis.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella mundiliformis (Dennis) Dennis.
Literature: Guzmán (1983), Guzmán et al. (1988).
Psathyrella subnuda (P. Karst.) A.H. Sm.
Literature: Guzmán (1983), Guzmán et al. (1988).

Pterulaceae
Pterula plumosa (Schwein.) Fr.
Literature: Guzmán (2003).

Schizophyllaceae
Schizophyllum commune Fr.
Literature: Chío and Guzmán (1982), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).
Schizophyllum fasciatum Pat.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000).
Schizophyllum umbrinum Berk.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000).

Strophariaceae
Agrocybe praecox (Pers.) Fayod.
Literature: Pérez-Silva et al. (1992).
Agrocybe retigera (Speg.) Singer.
Literature: Guzmán (1983), Guzmán (2003).

Tricholomataceae
Arrhenia epichysium (Pers.) Redhead, Lutzoni, Moncalvo & Vilgalys.
Literature: Guzmán (1983).
Clitocybe jalapensis (Murrill) Singer.
Literature: Guzmán (1983).
Collybia trinitatis Dennis.
Literature: Guzmán (2003).
Collybia zonata (Peck.)Sacc.
Literature: Pérez-Silva et al. (1992).
Lepista yukatanensis Guzmán & Bon.
Literature: Guzmán (1982), Guzmán (2003). Fig. 4K.
Leucopaxillus gracillimus Singer & A.H. Sm.
Literature: Guzmán (2003). Fig. 4L.
**Macrocybe titans* (H.E. Bigelow & Kimbr.) Pegler, Lodge & Nakasone. Fig. 3B.
Melanoleuca yucatanensis Pegler.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011), Sánchez-García et al. (2013).
Tricholomopsis tropica Dennis.
Literature: Guzmán (1983).

Auriculariales
Auriculariaceae
Auricularia cornea Ehrenb.
Literature: Guzmán (2003).
Auricularia delicata (Mont. ex Fr.) Henn.
Literature: Guzmán (2003).
Auricularia fuscosuccinea (Mont.) Henn.
Literature: Guzmán (2003); Pompa-Gonzáles et al. (2011). Fig. 5A.
Auricularia mesenterica (Dicks.) Pers.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011).
Auricularia nigricans (Sw.) Birkebak, Looney & Sánchez-García.
Literature: Guzmán (1983), Pompa-Gonzáles et al. (2011).

Boletales
Boletaceae
Boletellus cubensis (Berk. & M.A. Curtis) Singer.
Literature: Singer et al. (1993), de la Fuente et al. (2018a).
**Mucilopilus mexicanus* (Guzmán) Wolfe. Fig. 3C.
Octaviania ciqroensis Guzmán.
Literature: Guzmán (1982), de la Fuente et al. (2018a).
Pulveroboletus aberrans Heinem. & Gooss.-Font.
Literature: Guzmán (1983).
Xerocomus coccolobae Pegler.
Literature: de la Fuente et al. (2018a).
Xerocomus caeruleonigrescens Pegler.
Literature: García-Jiménez (1999), García-Jiménez and Garza-Ocañas (2001), de la Fuente et al. (2018a).
Xerocomus cuneipes Pegler.
Literature: García-Jiménez (1999), García-Jiménez and Garza-Ocañas (2001), de la Fuente et al. (2018a).

Boletinellaceae
Phlebopus brasiliensis Singer.
Literature: de la Fuente et al. (2018a).
Phlebopus colossus (R. Heim) Singer.
Literature: Guzmán (1983), Guzmán (2003), de la Fuente et al. (2018a).

Coniophoraceae
**Gyrodontium sacchari* (Spreng.) Hjortstam. Fig. 3D.

Sclerodermataceae
Scleroderma albidum Pat. & Trab.
Literature: Guzmán et al. (2014), de la Fuente et al. (2018a).

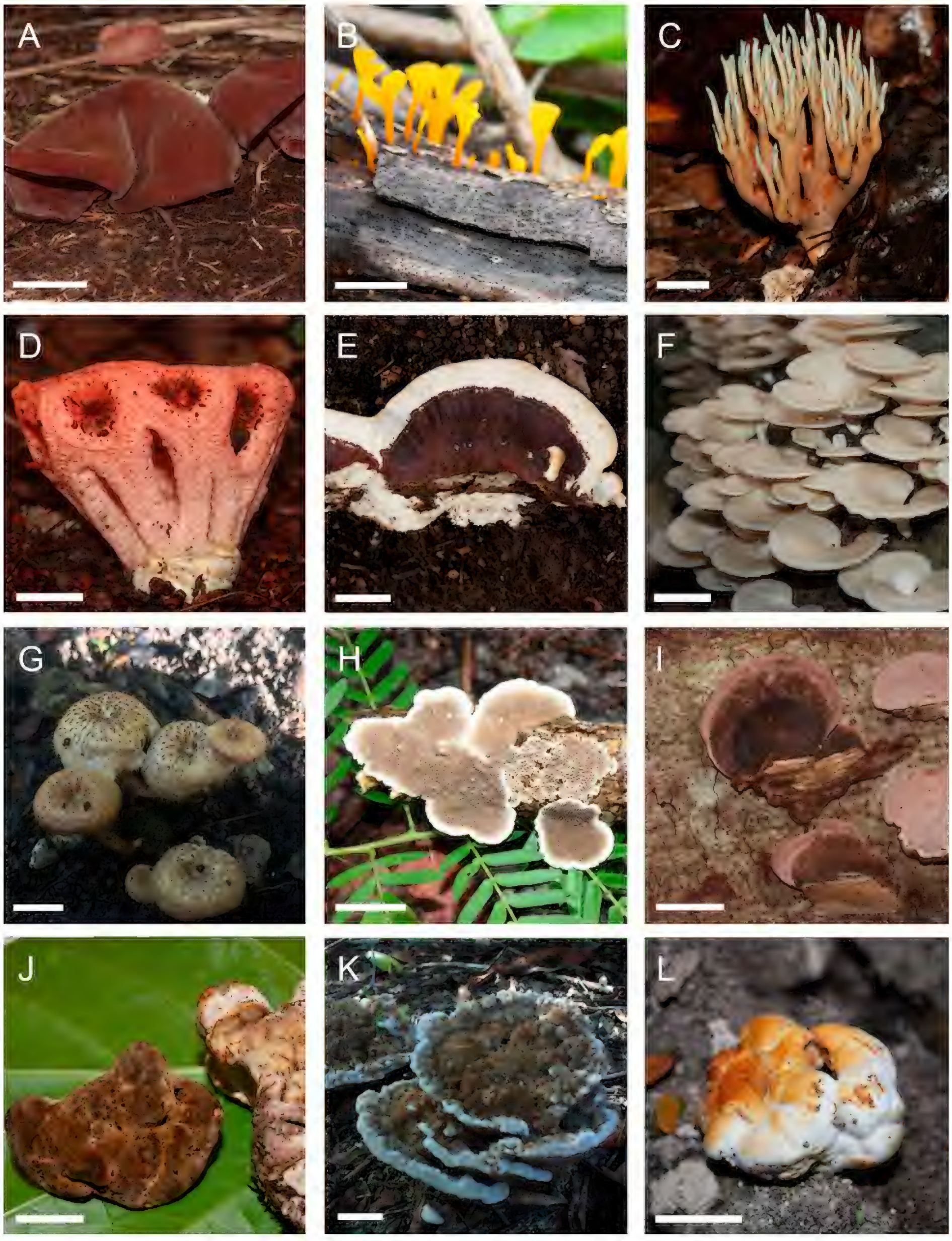

Figure 5. Representative fungi from Quintana Roo. **A.** *Auricularia fuscosuccinea*. **B.** *Dacryopinax spathularia*. **C.** *Phaeoclavulina cyanocephala*. **D.** *Clathrus crispus*. **E.** *Earliella scabrosa*. **F.** *Favolus tenuiculus*. **G.** *Lentinus tigrinus*. **H.** *Trametes villosa*. **I.** *Rhodofomitopsis feei*. **J.** *Amylosporus campbellii*. **K.** *Tremelloscypha gelatinosa*. **L.** *Redeckera fulva*. Scale bars = 10 mm.

Scleroderma areolatum Ehrenb.
Literature: Pérez-Silva et al. (1992), Guzmán et al. (2014), de la Fuente et al. (2018a).

Scleroderma bermudense Coker.
Literature.Guzmán (1983), Guzmán et al. (2014), de la Fuente et al. (2018a).

Scleroderma nitidum Berk.
Literature: de la Fuente et al. (2018a).

Scleroderma sinnamariense Mont.
Literature: Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011), de la Fuente et al. (2018a).

Paxillaceae
Gyrodon intermedius (Pat.) Singer.
Literature: Chío and Guzmán (1982), de la Fuente et al. (2018a).

Suillaceae
Suillus decipiens (Peck) Kuntze.
Literature: de la Fuente et al. (2018a).

Cantharellales
Cantharellaceae
**Cantharellus coccolobae* Buyck, P.-A. Moreau & Courtec. Fig. 3E.

Dacrymycetales
Dacrymycetaceae
Calocera cornea (Batsch) Fr.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011).
Calocera macrospora Brasf.
Literature: Guzmán (2003).
Cerinomyces lagerheimii (Pat.) McNabb.
Literature: Sierra and Cifuentes (2008).
Dacryopinax elegans (Berk. & M.A. Curtis) G.W. Martin.
Literature: Pérez-Silva et al. (1992), Guzmán (2003). Fig.5B.
Dacryopinax spathularia (Schwein) G. W. Martin.
Literature: Pérez-Silva et al. (1992), Guzmán (2003), Pompa-Gonzáles et al. (2011).
Ditiola radicata (Alb. & Schwein.) Fr.
Literature: Guzmán (1983).

Geastrales
Geastraceae
Geastrum campestre Morgan.
Literature: Guzmán (2003).
Geastrum coronatum Pers.
Literature: Pérez-Silva et al. (1999).
Geastrum fimbriatum Fr.
Literature: Guzmán (2003).
Geastrum fuscogleba (Zeller) Jeppson & E. Larss.
Literature: Pérez-Silva et al. (1993).
Geastrum mirabile Mont.
Literature: Pérez-Silva et al. (1993).
Geastrum pectinatum Pers.
Literature: Guzmán (1983).
Geastrum saccatum Fr.
Literature: Pérez-Silva et al. (1999), Guzmán (2003).
Geastrum schweinitzii (Berk. & M.A. Curtis) Zeller.
Literature: Guzmán (1983), Guzmán (2003).
Geastrum subiculosum Cooke & Massee.
Literature: Guzmán (1983).
Geastrum triplex Jungh.
Literature: Guzmán (1983).

Myriostoma coliforme (Dicks.) Corda.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Guzmán (2003).
Gloeophyllales
Gloeophyllaceae
Gloeophyllum striatum (Fr.) Murrill.
Literature: Guzmán (1983), Bandala et al. (1993), Pompa-Gonzáles et al. (2011).
Gomphales
Gomphaceae
Gomphus brunneus (Heinem.) Corner.
Literature: Guzmán (1983).
Phaeoclavulina articulotea (R. H. Petersen) Giachini.
Literature: Gonzáles-Ávila et al. (2013).
Phaeoclavulina cyanocephala (Berk. & M.A. Curtis) Giachini.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Guzmán (2003), Gonzáles-Ávila et al. (2013). Fig. 5C.
Phaeoclavulina guyanensis (Pat.) Giachini.
Literature: Guzmán (1983).
Phaeoclavulina zippeli (Lév) Overeem.
Literature: Gonzáles-Ávila et al. (2013).
Terenodon serenus Maas Geest.
Literature: Guzmán (1983).

Lentariaceae
Lentaria surculus (Berk.) Corner.
Literature: Guzmán (2003).
Hymenochaetales
Incertae cedis
Trichaptum biforme (Fr.) Ryvarden.
Literature: Guzmán (1983), Bandala et al. (1993), Guzmán (2003).
Trichaptum byssogenum (Jungh.) Ryvarden.
Literature: Bandala et al. (1993).
Trichaptum fumosoavellaneum (Romell) Rajchenb. & Bianchin.
Literature: Bandala et al. (1993).
Trichaptum perrottetii (Lév.) Ryvarden.
Literature: Pérez-Silva et al. (1992), Bandala et al. (1993), Guzmán (2003).
Trichaptum sector (Ehrenb.) Kreisel.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).
Trichaptum trichomallum (Berk. & Mont.) Murrill.
Literature: Chío and Guzmán (1982).

Hymenochaetaceae
Fomitiporia robusta (P. Karst.) Fiasson & Niemelä.
Literature: Guzmán (1983).
Fulvifomes rhytiphloeus (Mont.) Camp.-Sant. & Robledo.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993).
Fuscoporia contigua (Pers.) G. Cunn.
Literature: Ryvarden and Guzmán (1993), Raymundo et al. (2013).
Hymenochaete luteobadia (Fr.) Höhn. & Litsch.
Literature: Tapia et al. (2016).

Hymenochaete rheicolor (Mont.) Lév.
Literature: Pérez-Silva et al. (1992).
Inocutis porrecta (Murrill) Baltazar.
Literature: Pompa-Gonzáles et al. (2011).
Inonotus luteoumbrinus (Romell) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011).
Inonotus tabacinus (Mont.) G. Cunn.
Literature: Bandala et al. (1993).
Phellinus crocatus (Fr.) Ryvarden.
Literature: Chío and Guzmán (1982), Guzmán (1983).
Phellinus fastuosus (Lév.) S. Ahmad.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).
Phellinus ferrugineovelutinus (Henn.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Chay-Casanova and Medel (2000).
Phellinus gilvus (Schwein.) Pat.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Bandala et al. (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011), Raymundo et al. (2013).
Phellinus grenadensis (Murrill) Ryvarden.
Literature: Ryvarden and Guzmán (1993).
Phellinus nilgheriensis (Mont.) G. Cunn.
Literature: Bandala et al. (1993), Pompa-Gonzáles et al. (2011).
Phellinus rimosus (Berk.) Pilát.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011).
Phellinus robinie (Murrill) A. Ames.
Literature: Bandala et al. (1993).
Phellinus roseocinereus (Murrill) D.A. Reid.
Literature: Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000).
Phellinus swieteniae (Murrill) S. Herrera & Bondartseva.
Literature: Chío and Guzmán (1982), Bandala et al. (1993).
Phylloporia chrysites (Berk.) Ryvarden.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011).
Phylloporia pectinata (Klotzsch) Ryvarden.
Literature: Guzman (1983).
Phylloporia spathulata (Hook.) Ryvarden.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Ryvarden and Guzmán (1993), Chay-Casanova and Medel (2000), Guzmán (2003).
Phylloporia verae-crucis (Berk. ex Sacc.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Guzmán (2003), Guzmán (2004).
Sanghuangporus weirianus (Bres.)L.W. Zhou & Y.C. Dai.
Literature: Bandala et al. (1993).
Tropicoporus linteus (Berk. & M.A. Curtis) L.W. Zhou & Y.C. Dai.
Literature: Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011), Valenzuela et al. (2013).

Repetobasidiaceae
Sidera lenis (P. Karst.) Miettinen.
Literature: Ryvarden and Guzmán (1993).

Phallales
Phallaceae
Clathrus crispus Turpin.
Literature: Guzmán (2003), Pompa-González et al. (2011).
Clathrus ruber P. Micheli ex Pers.
Literature: Pompa-Gonzáles et al. (2011).
**Laternea dringii* A. López, D. Martínez & J. García.
Fig. 3F.
Phallus indusiatus Schltdl. Literatura: Guzmán et al. (1990).

Polyporales
Ganodermataceae
Amauroderma camerarium (Berk.) J.S. Furtado.
Literature: Bandala et al. (1993), Ryvarden and Guzmán (1993), Guzmán (2003).
Ganoderma australe (Fr.) Pat.
Literature: Guzmán (2003).
Ganoderma colossus (Fr.) C.F. Baker.
Literature: Guzmán (1983), Bandala et al. (1993), Guzmán (2003), Torres-Torres et al. (2015).
Ganoderma curtisii (Berk.) Murrill.
Literature: Guzmán (1983), Bandala et al. (1993).
Ganoderma fornicatum (Fr.) Pat.
Literature: Guzmán (1983), Bandala et al. (1993).
Ganoderma lobatum (Cooke) G.F. Atk.
Literature: Pérez-Silva et al. (1993).
Ganoderma lucidum (Curtis) P. Karst.
Literature: Pérez-Silva et al. (1992), Bandala et al. (1993), Guzmán (2003).
Ganoderma resinaceum Boud.
Literature: Bandala et al. (1993).
Ganoderma sessile Murrill.
Literature: Guzmán (1983).
Ganoderma weberianum (Bres. & Henn. ex Sacc.) Steyaert.
Literature: Guzmán (1983).
Humphreya coffeata (Berk.) Steyaert.
Literature: Ryvarden and Guzmán (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Phanerochaetaceae
Antrodiella versicutis (Berk. & M.A. Curtis) Gilb. & Ryvarden.
Literature: Bandala et al. (1993), Ryvarden and Guzmán (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Meripilaceae
Rigidoporus microporus (Sw.) Overeem.
Literature: Guzmán (1983), Bandala et al. (1993).

Rigidoporus vinctus (Berk.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Guzmán (2003).

Meruliaceae

Bjerkandera adusta (Willd.) P. Karst.
Literature: Bandala et al. (1993), Chío and Guzmán (1982).

Cymatoderma caperatum (Berk. & Mont.) D.A. Reid.
Literature: Guzmán (2003).

Flavodon flavus (Klotzsch) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011), Tapia et al. (2016).

Junghuhnia nitida (Pers.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Guzmán (2003), Tapia et al. (2016).

Polyporaceae

Cerioporus varius (Pers.) Zmitr. & Kovalenko.
Literature: Bandala et al. (1993), Ryvarden and Guzmán (1993).

Coriolopsis brunneoleuca (Berk.) Ryvarden.
Literature: Pérez-Silva et al. (1992), Pompa-Gonzáles et al. (2011).

Coriolopsis byrsina (Mont.) Ryvarden.
Literature: Bandala et al. (1993), Pompa-Gonzáles et al. (2011).

Coriolopsis occidentalis (Klotzsch) Murrill.
Literature: Chío and Guzmán (1982).

Earliella scabrosa (Pers.) Gilb. & Ryvarden.
Literature: Chío and Guzmán (1982), Guzmán (1983), Pérez-Silva et al. (1992), Guzmán (2003), Pompa-Gonzáles et al. (2011). Fig. 5E.

Favolus grammocephalus (Berk.) Imazeki.
Literature: Bandala et al. (1993), Pompa-Gonzáles et al. (2011).

Favolus tenuiculus P. Beauv.
Literature: Chío and Guzmán (1982), Guzmán (1983), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011). Fig. 5F.

Fomes endotheius (Berk.) Sacc.
Literature: Chío and Guzmán (1982), Bandala et al. (1993).

Fomes extensus (Lév.) Cooke.
Literature: Guzmán (1983), Bandala et al. (1993).

Fomes fasciatus (Sw.) Cooke.
Literature: Guzmán (1983).

Fomes meliae (Underw.) Murrill.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993).

Funalia caperata (Berk.) Zmitr. & Malysheva.
Literature: Chío and Guzmán (1982), Pérez-Silva et al. (1992), Ryvarden and Guzmán (1993), Guzmán (2003).

Funalia floccosa (Jungh.) Zmitr. & Malysheva.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993).

Grammothele fuligo (Berk. & Broome) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Guzmán (2003).

Lentinus arcularius (Batsch) Zmitr.
Literature: Pompa-Gonzáles et al. (2011).

Lentinus badius (Berk.) Berk.
Literature: Chío & Guzmán (1982), Pompa-Gonzáles et al. (2011).

Lentinus berteroi (Fr.) Fr.
Literature: Pompa-Gonzáles et al. (2011).

Lentinus crinitus (L.) Fr.
Literature: Chío and Guzmán (1982), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Lentinus scleropus (Pers.) Fr.
Literature: Pérez-Silva et al. (1992).

Lentinus tigrinus (Bull.) Fr.
Literature: Pérez-Silva et al. (1992). Fig. 5G.

Lentinus tricholoma (Mont.) Zmitr.
Literature: Chío and Guzmán (1982), Bandala et al. (1993), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Lentinus velutinus Fr.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011).

Microporellus obovatus (Jungh.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Chay-Casanova and Medel (2000).

Panus rudis Fr.
Literature: Chío and Guzmán (1982).

Perenniporia ohiensis (Berk.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Chay-Casanova and Medel (2000).

Polyporus albiceps Peck.
Literature: Guzmán (1983).

Polyporus guianensis Mont.
Literature: Guzmán (1983), Bandala et al. (1993), Guzmán (2003), Pompa et al. (2011).

Polyporus leprieuri Mont.
Literature: Guzmán (1983), Bandala et al. (1993).

Pycnoporus sanguineus (L.) Murrill.
Literature: Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).

Trametes elegans (Spreng.) Fr.
Literature: Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).

*Trametes hirsuta (*Wulfen) Lloyd.
Literature: Guzmán (1983).

Trametes hirta (P. Beauv.)Zmitr., Wasser & Ezhov.
Literature: Chío and Guzmán (1982), Bandala et al. (1993).

Trametes hydnoides (Sw.) M. Fidalgo.
Literature: Guzmán (1983), Bandala et al. (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Trametes maxima (Mont.) A. David & Rajchenb.
Literature: Chío and Guzmán (1982), Pérez-Silva et

al (1992), Bandala et al. (1993), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).

Trametes membranacea (Sw.) Kreisel.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Bandala et al. (1993), Chay-Casanova and Medel (2000).

Trametes modesta (Kunze ex Fr.) Ryvarden.
Literature: Chío and Guzmán (1982).

Trametes pavonia (Berk.) Fr.
Literature: Pérez-Silva et al. (1992), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).

Trametes polyzona (Pers.) Justo.
Literature: Bandala et al. (1993), Chay-Casanova and Medel (2000), Pompa-Gonzáles et al. (2011).

Trametes tenuis (Fr.) Fr.
Literature: Bandala et al. (1993), Guzmán (2003).

Trametes variegata (Berk.) Zmitr., Wasser & Ezhov.
Literature: Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Trametes villosa (Sw.) Kreise.
Literature: Guzmán (1983), Pérez-Silva et al. (1992), Bandala et al. (1993), Chay-Casanova and Medel (2000), Pompa-Gonzáes et al. (2011). Fig. 5H.

Fomitopsidaceae

Daedalea microsticta Cooke.
Literature: Ryvarden and Guzmán (1993), Bandala et al. (1993), Guzmán (2003).

Phaeodaedalea incerta (Curr.) Ţura, Zmitr., Wasser & Spirin.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Bandala et al. (1993), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Postia caesia (Schrad.) P. Karst.
Literature: Guzmán (1983), Bandala et al. (1993).

Rhodofomitopsis feei (Fr.) B.K. Cui, M.L. Han & Y.C. Dai.
Literature: Chío and Guzmán (1982), Guzmán (1983), Bandala et al. (1993), Chay-Casanova and Medel (2000), Guzmán (2003), Pompa-Gonzáles et al. (2011). Fig. 5I.

Phanerochaetaceae

Ceriporiopsis mucida (Pers.) Gilb. & Ryvarden.
Literature: Tapia et al. (2016).

Russulales

Bondarzewiaceae

Amylosporus campbellii (Berk.) Ryvarden.
Literature: Ryvarden and Guzmán (1993), Pompa-Gonzáles et al. (2011). Fig. 5J.

Steccherícium seriatum (Lloyd) Maas Geest.
Literature: Guzmán (1983), Chay-Casanova and Medel (2000), Tapia et al. (2016).

Russulaceae

**Lactifluus nebulosus* (Pegler) De Crop. Fig. 3G.

**Russula cremeolilacina* Pegler. Fig. 3H.

Stephanosporaceae

Mayamontana coccolobae Castellano, Trappe & Lodge.
Literature: de la Fuente et al. 2018.

Stephanospora mayana de la Fuente, García-Jiménez, Guevara-Guerrero & Oros-Ortega.
Literature: de la Fuente et al. 2019.

Stereaceae

Xylobolus subpileatus (Berk. & M.A. Curtis) Boidin.
Literature: Pérez-Silva et al. (1992).

Sebacinales

Sebacinaceae

Sebacina confusa R. Kirschner & Oberw.
Literature: Guzmán (1983), Guzmán (2003).

Tremelloscypha gelatinosa (Murrill) Oberw. & K. Wells.
Literature: Guzmán (2003). Fig. 5K.

Thelephorales

Thelephoraceae

Thelephora pseudoterrestris Corner.
Literature: Guzmán (2003).

Trechisporales

Hydnodontaceae

Hydnodon thelephorus (Lév.) Banker.
Literature: Guzmán (2003).

Tremellales

Tremellaceae

**Tremella fuciformis* Berk. Fig. 3I.

Tremella mesenterica Retz.
Literature: Guzmán (1983), Chay and Medel (2000).

Tremella rubromaculata Lowy.
Literature: Guzmán (1983), Guzmán (2003), Pompa-Gonzáles et al. (2011).

Tremella wrightii Berk. & M.A. Curtis.
Literature: Guzmán (2003).

Glomeromycota

Diversisporales

Diversisporaceae

Redeckera fulvum (Berk. & Broome) C. Walker & A. Schüßler.
Literature: Guzmán (2003), Pompa-Gonzáles et al. (2011). Fig. 5L.

New records of macrofungi for Quintana Roo, Mexico

***Ophiocordyceps melolonthae* (Tul. & C. Tul.) G.H. Sung, J.M. Sung, Hywel-Jones & Spatafora**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 73 (ITCV); Hermenegildo Galeana; 18°10′N, 089°14′W; alt. 229 m; 12 Oct. 2014.

Habit and habitat. Scattered on larvae of Coleoptera in evergreen tropical forest.

Identification. This species is characterized by scattered, clavate, yellowish ascomata, 1–5 cm long, filiform ascospores reaching up to 200 µm, fragmenting into

small segments, and the parasitic habit on coleopteran caterpillars. Our material agrees with the descriptions provided by Webber and Smith (1985) and Pérez-Silva et al. (1977).

Geodina guanacastensis Denison

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 362 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 18 Oct. 2019.

Habit and habitat. Caespitose or solitary on humus in lowland forest.

Identification. This species can easily be recognized by orange cup-shaped ascomata covered by brownish hairs and a pseudostipe. Microscopically, this species can be recognized by reticulate spores of 24–35 × 12–17 µm. Our material agrees with the description provided by Ortega-López et al. (2019). Our material is morphologicaly similar to *G. salmonicolor* Angelini & Medardi from the Dominican Republic (Angelini et al. 2018), which was considered as a synonym of *G. guanacastensis* by Pfister et al. (2020).

Xylaria mesenterica (Möller) M. Stadler, Læssøe & J. Fourn.

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 68 (ITCV); Jaguactal; 18°14′N, 088°57′W; alt. 132 m; 12 Oct. 2014.

Habit and habitat. Caespitose on fallen logs in evergreen tropical forest.

Identification. This species can be recognized by the globose and gelatinose stroma with greyish hues and the dark ellipsoid ascospores of 11–14 × 5–6 µm. Our material agrees with the description provided by San Martín and Lavín (1997) described for *Entonaema pallidum* G.W. Martin. This species differs from similar species, such as *E. globosum* R. Heim. and *E. liquescens* Möller, by the greyish colour of the stromata. *Entonaema pallidum* was transferred to *Xylaria mesenterica* based on molecular and morphological evidence (Stadler et al. 2008).

Panaeolus cyanescens Sacc.

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente and Aragón 310 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 27 Sep. 2017.

Habitat and habit. Scattered on humus on secondary vegetation.

Identification. This species can be recognized by the whitish pileus, greyish lamellae, bluish reaction when cut, and subglobose, dark brown basidiospores of 9–12 × 6–9 µm. The material agrees with the description provided by Pegler (1983). It differs from *P. antillarum* (Fr.) Dennis by the bluish reaction (negative in *P. antillarum*) the size of the basidioma and the lack of metuloid cystidia (absent in *P. antillarum*).

Rugosospora ochraceobadia (Beeli) Heinem.

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 159 (ITCV); Oxtankáh; 18°36′N, 088°13′W; alt. 14 m; 17 Oct. 2016.

Habit and habitat. Scattered on humus in evergreen tropical forest.

Identification. This species can be recognized by a white pileus with orange scales, the free white lamellulae, the withish stipe, and the rough spores of 9–13 × 6–7 µm. Our material agrees with the descriptions provided by from Ferreira and Cortez (2011) and Bautista-Hernández and Aguirre-Acosta (2004). *Rugosospora ochraceobadia* differs from *R. pseudorubiginosa* (Cifuentes & Guzmán) Guzmán & Bandala by the reticulate spores.

Amanita arenicola O. K. Miller & Lodge

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 427 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 14 Oct. 2018.

Habit and habitat. Scattered under *Coccoloba uvifera* in coastal vegetation.

Identification. This species can be recognized by the grey pileus with white patches that are the remains of the volva, white and free lamellulae, a whitish pileus sometimes with conspicuous white scales on the base, the small saccate volva, which sometimes remains underground, and the ellipsoid basidiospores of 8–10 × 6–8 µm. Our specimen from Quintana Roo agrees with the description provided by Miller et al. (2000), but it presents slightly shorter spores. *Amanita agluttinata* (Berk. & M.A. Curtis) Lloyd is a similar species but differs by the presence of a ring on the stipe (Pegler 1983).

Pseudofistulina radicata (Schwein.) Burds.

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 351 (ITCV); Oxtankáh; 18°36′N, 088°13′W; alt. 14 m; 24 Oct. 2017.

Habit and habitat. Solitary on underground rotten logs in evergreen tropical forest.

Identification. This species can be recognized by the petaloid to reniform pileus, the small whitish rounded pores, and the lateral stipe inserted on the substrate, the subglobose basidiospores of 3–5 µm, and the clavate and diverticulate acanthophyses. Our material agrees with the description provided by Guzmán (1987). This species is consumed by the Maya people in Guatemala (Guzmán 1987).

Psilocybe cubensis (Earle) Singer

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 173 (ITCV); Blasillo; 18°09′N, 088°57′W; alt. 132 m; 11 Dec. 2017.

Habit and habitat. Solitary or scattered on cow dung in secondary vegetation.

Identification. This species is recognized by the mamillate pileus, whitish with yellowish tints and small scales, the free greyish lamellae, the whitish stipe with a dark glutinose ring, the bluish reaction when cut, and the thick-walled, brownish, ellipsoid spores of 10–15 × 6–9 µm. Our material agrees with the descriptions provided by Pegler (1983) and Pulido (1983).

Neopaxillus dominicanus Angelini & Vizzini

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 38 (ITCV); San Pedro Peralta; 18°42′N, 088°49′W; alt. 175 m; 14 Oct. 2014.

Habit and habitat. Scattered on humus in secondary vegetation.

Identification. This species can be recognized by the pale brown to orange pileus, the whitish decurrent lamellae, and the echinulate rounded spores of 10–13 µm in diameter. Our material agrees with the description provided by Vizzini et al. (2011). *Neopaxillus echinospermus* (Speg.) Singer is a similar species, but it differs from *N. dominicanus* by having an umbilicate pileus.

Calocybe cyanea Singer ex Redhead & Singer

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente and Yuridia López 72 (ITCV); Chetumal; 18°31′N, 088°18′’ W; alt. 8 m; 05 Oct. 2011.

Habit and habitat. Scattered on humus in secondary vegetation.

Identification. This species can be identified by the purple pileus and the free yellowish lamellae, the greyish stipe, microscopically shows globose spores 3–5 × 2–4 µm, hyaline in KOH without cystidia. Our material agrees with the descriptions provided by Guevara-Guerrero et al. (1985) and Baroni et al. (1999), but our material has more intensely yellow lamellae. *Calocybe cyanocephala* (Pat.) Pegler is a similar species but with lilac lamellae. *Calocybe cyanella* Singer ex Redhead & Singer also has a purple pileus but its lamellae are white (Baroni et al. 1999).

Gerronema bryogeton Singer

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 430 (ITCV); road to El Huasteco; 19°18′N, 088°16′W; alt. 33 m; 08 Jan. 2019.

Habit and habitat. Scattered on fallen logs in evergreen tropical forest.

Identification. This species can be identified by a small depressed pileus with greyish tones, whitish lamellae, a dark stipe, and ellipsoid spores of 6–9 × 3–5 µm. Our material agrees with the description provided by Pegler (1983). *Gerronema cyathiforme* (Berk. & M.A. Curtis) is a similar species but differs from *G. bryogeton* by having a reddish to olivaceous brown stipe (Pegler 1983).

Inocybe xerophytica Pegler

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 317 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 06 Oct. 2017.

Habit and Habitat. Scattered under *Coccoloba uvifera* in coastal and secondary vegetation.

Identification. This species can be identified by the flat pileus covered by brown scales, the pale brown lamellae, the pale brown, pruinose stipe without volva, and the subglobose, angulose to verrucose basidiospores of 7–9 × 5–7 µm. Our material agrees with the description provided by Pegler (1983). *Inocybe paralanuginosa* Pegler is a similar species that differs by having a smooth stipe.

Hydropus nigrita (Berk. & M.A. Curtis) Singer

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 266 (ITCV); Laguna Guerrero; 18°45′N, 088°11′W; alt. 9 m; 11 Jan. 2017.

Habit and habitat. Scattered on fallen logs in lowland forest.

Identification. This species can easily be identified by the olive-greenish pileus with black spots and the cream context that when cut stains black and sometimes exudes a latex-like substance. The material agrees with the description provided by Pegler (1983). The blackening context distinguishes this species from all other tropical *Hydropus* species.

Macrocybe titans (H.E. Bigelow & Kimbr.) Pegler, Lodge & Nakasone

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente and Quintal Palomo 299 (ITCV); Kohunlich; 18°25′N, 088°47′W; alt. 120 m; 12 Sep. 2017.

Habit and habitat. Caespitose on humus in evergreen tropical forest.

Identification. This species can be identified by the big size of its basidiomata, the caespitose habit, the crowded white lamellae, and the thick stipe with brown scales. Microscopically it is distinguished by the globose spores, 5.9–8.3 × 4.3–5.9 µm, the ventricose cheilocystidia, the lack of pleurocystidia, and the presence of clamp-connections. Our material agrees with the description provided by Guzmán and Piepenbring (2011) but presents smaller cystidia.

Gyrodontium sacchari (Spreng.) Hjortstam

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 298 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 17 Jan. 2017.

Habit and habitat. Resupinate on dead trees in secondary vegetation.

Identification. This species can be recognized by the resupinate basidiomata with brownish colours, the hymenia composed by truncate spines, which are yellowish when young, becoming olive brown when aged, and the globose, brown spores, 4.0–5.0 × 2.5–3.6 µm. Our material agrees with the descriptions provided by from Valenzuela et al. (2014) and Hembrom et al. (2014).

***Mucilopilus mexicanus* (Guzmán) Rolfe**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 29 (ITCV); Hermenegildo Galeana; 18°10′N, 089°14′W; alt. 229 m; 29 Aug. 2014.

Habit and habitat. Solitary or scattered in lowland forest and pine savanna, sometimes associated with *Coccoloba* or *Gymnoponium* species.

Identification. This species can be recognized by the greyish pileus, slightly tomentose when young, viscid when aged, the pinkish pores which become grey when aged, the viscid stipe, the fusoid spores 8.1–12.2 × 4.1–5.9 µm, and the clavate cystidia. The specimen agrees with the description provided by Guzmán (1974). This species resembles *Fistulinella gloeocarpa* Pegler in having the basidioma viscid, but it differs from that species by the spore size and the ampullaceous cystidia which has a long slender neck (Pegler 1983).

***Cantharellus coccolobae* Buyck, P.A. Moreau & Courtec.**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 422 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 08 Oct. 2018.

Habit and habitat. Scattered under *Coccoloba uvifera* in coastal vegetation.

Identification. This species can be distinguished by the orange basidiomata, the whitish context which becomes slightly yellowish at the base, slightly peppery flavor, and the ellipsoid basidiospores of 7–11 × 4–6 µm. Our material agrees with the description provided by Buyck et al. (2016). *Cantharellus cinabarinus* (Schwein.) Schwein is a similar species, but it differs by its wider spores and elements of the pileipellis (Pegler 1983; Buyck et al. 2016).

***Laternea dringii* A. López, D. Martínez & J. García.**

Material studied. MEXICO - Quintana Roo • R.Y. Vela 105 (ITZM); San Pedro Peralta; 18°42′N, 088°49′W; alt. 175 m; 10 May 2018.

Habit and habitat. Solitary on humus in evergreen tropical forest.

Identification. This species can be distinguished by small basidiomata reaching 2 cm in length, composed of 3 or 4 yellowish to orange branches, the subtropical distribution, and the small bacillate basidiospores of 4–5 × 1–1.5 µm. Our material agrees with the description provided by López et al. (1981). *Laternea pusilla* Berk. & M.A. Curtis is a tropical to subtropical species, which differs by having a reddish basidiomata (Trierveiler-Pereira et al. 2019).

***Lactifluus nebulosus* (Pegler) De Crop.**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 210 (ITCV); Hermenegildo Galeana; 18°10′N, 089°14′W; alt. 229 m; 25 jan 2016.

Habit and habitat. Scattered on humus under *Gymnopodiumfloribundum* and *Coccolovadiversifolia* in lowland forest.

Identification. This species can be identified by the greyish to cream pileus, slightly wrinkled when aged, the whitish lamellae which stain brown when touched, the peppery white latex, and the ovoid basidiospores 8–11 × 6–9 µm with small verrucae, not reticulated. Our material agrees with the descriptions provided by Pegler and Fiard (1979) and Pegler (1983). *Lactifluus caribaeus* (Pegler) Verbeken has a similar pileus coloration, but it has a remarkably bad odour (Pegler and Fiard 1979). *Lactifluus chiapanensis* (Montoya, Bandala & Guzmán) De Crop also grows under *G. floribundum* but has smaller spores (8–8.8 µm) (Montolla-Bello 1994).

***Russula cremeolilacina* Pegler**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 82 (ITCV); Chetumal; 18°31′N, 088°18′W; alt. 8 m; 01 Jul. 2014.

Habit and habitat. Scattered under *Coccoloba uvifera* in coastal vegetation.

Identification. This species can be recognized by the cream pileus that becomes lilac towards the margin, the white, fragile lamellae without lamellulae, the association with *Coccoloba* species, and the verrucose, subreticulate, subglobose basidiospores of 6–8 × 5–6.5 µm. Our material agrees with the description provided by Pegler (1983) but presents paler basidiomata. *Russula diversicolor* Pegler is a tropical species but it differs in having a yellowish basidioma (Pegler 1983).

***Tremella fuciformis* Berk.**

Material studied. MEXICO - Quintana Roo • J.I. de la Fuente 308 (ITCV); Bacalar; 18°45′N, 088°20′W; alt. 19 m; 15 Sep. 2017.

Habit and habitat. Resupinate on dead logs in evergreen tropical forest.

Identification. This species is characterized by gelatinose basidiomata with whitish tones, foliose lobules, a slightly yellowish base, and ovoid to subglobose basidiospores of 5–7 × 3.5–5.5 µm. Our material agrees with the description provided by Weber and Smith (1986). It differs from other *Tremella* species present in Quintana Roo, like *T. rubromaculata* Lowy and *T. wrightii* Berk. & M.A. Curtis, by the whitish basidioma (Guzmán 2003).

Discussion

As a result of our fieldwork, which added 21 species for Quintana Roo, 401 species of macrofungi and fungus-like organisms are now known for this state. From the literature, 380 species were previously known.

Most species studied here show affinity to fungi of the Neotropical region. They are similar to those previously

recorded for tropical forests of northern Mexico (García and Valenzuela 2005), the Pacific coast (Bautista-Hernández and Aguirre-Acosta 2004; Ramírez-López et al. 2012), southern Mexico (Villarruel-Ordáz et al. 2015, López-Guzmán et al. 2017), Central America (Singer et al. 1983; Ortíz-Santana et al. 2007), and the Antilles (Pegler and Fiard 1979; Pegler 1983; Guzmán 1988; Miller et al. 2000; Séne et al. 2012). Some species have wide geographic distributions and occur in Asia and elsewhere in the Americas. For example, *Gyrodontium sacchari* is found in Asia, South America, and reaches its northernmost distribution in Sonora, Mexico (Hembrom et al. 2014; Robledo et al. 2014; Valenzuela et al. 2014), *Cookeina tricholoma* and *Cookeina speciosa*, are pantropical (Denison 1969, 1970; Beug et al. 2013), and *Leucoagaricus lilaceus* is common in South America (Singer and Digilio 1954; Rother and da Silveira 2009), occurring north to the tropical forests of Tamaulipas (de la Fuente et al. 2018c).

Most species recorded for Quintana Roo are saprobic and very few mycorrhizal species can be found, mostly associated with Polygonaceae and Pinaceae. The most representative species are *Amanita arenicola*, *Cantharellus coccolobae*, *Inocybe xerophytica*, and *Russula cremeolilacina*, which are associated with *Coccoloba uvifera* trees in Mexico and the Antilles (Pegler 1983; de la Fuente et al. 2018a); *Lactarius nebulosus*, associated with Polygonaceae trees in the Antilles and northern Mexico (Pegler and Fiard 1979; García and Valenzuela 2005); *Boletellus cubensis*, associated with Fabaceae and Polygonaceae (Singer et al. 1993; Ortíz-Santana et al. 2007) and *Suillus decipiens*, very common in Central America, Cuba, and Florida (Singer 1949; Singer et al. 1983; Kropp 2001; Ortíz-Santana et al. 2007) and also in Quintana Roo (de la Fuente et al. 2018a).

The saprobic species are common in the six vegetation types studied here. Most species develop on dead logs, branches, leaves, or humus and belong to the orders Agaricales, Polyporales, and Xylariales; these orders are the most common in the Mexican tropical forest (Ramírez-López et al 2012). The most representative species are *Pycnoporus sanguineus*, *Schizophyllum commune*, *Trogia cantharelloides*, *Trametes villosa*, *Trametes hydnoides*, and numerous species of *Geastrum*, *Hypoxylon*, *Marasmius*, and *Xylaria*. Parasitic macrofungi are less abundant, but some species of *Ganoderma*, *Phellinus*, and *Phylloporia* grow on Fabaceae trees, mainly on *Lysiloma latisiliquum*.

The fungal endemism of Quintana Roo has been little discussed (López et al. 2011). However, in this work we present some species that could be endemic to the Yucatan Peninsula. Although the species of *Lepiota* are very common in tropical forests, some species such as *L. ciqroensis*, *L. microcystidiata*, *L. mucronata*, *L. quintanaroensis*, and *L. termitomyces* are only known from Quintana Roo (Guzmán-Dávalos and Guzmán 1982; Chay and Medel 2000). *Amanita silvatica* has only been reported for Quintana Roo by Guzmán (1983), Guzmán (2003), and in this work. *Mucilopilus mexicanus* has been reported once by Guzmán (1974) in Campeche and in this study. *Amanita silvatica* and *Mucilopilus mexicanus* are restricted to lowland forests, possibly associated with *Coccoloba* or *Gymnopodium* trees. Three truffle-like fungal species show restricted distribution: *Mayamontana coccolobae* is only known from Belize and southern parts of Campeche and Quintana Roo (Castellano et al. 2007; de la Fuente et al. 2018b). The recently described *Stephanospora mayana* is reported from Quintana Roo and Campeche growing in lowland forest and pine savanna (de la Fuente et al. 2019). *Octaviania ciqroensis* is only known from the type collection from northern Quintana Roo (Guzmán 1982). More fieldwork is needed to know the real distribution of these species.

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Authors' Contributions

JIF, JACC, RVH and LEIG collected the specimens, FGO, JGJ, GGG, VMB and JIF identified the species. CYL, GGG, JIF, IOO and JACC wrote the article. LEIG made the figures. All the authors revised the manuscript.

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